

**REMARKS/ARGUMENTS**

Claims 1-3 and 6-22 are pending. By this Amendment, the specification is amended, the drawings are revised, claims 1 and 3 are amended, claims 4 and 5 are canceled without prejudice to or disclaimer of subject matter contained therein, and claims 6-22 are added. No new matter has been added.

The specification at paragraph [0007] is amended to correct a typographical error. The specification at paragraph [0014] is amended to provide description of elements appearing in Fig. 3. Drawing Figs. 3 and 4 are replaced with a new drawing showing previously omitted reference numbers. Replacement Fig. 4 further shows revised reference numbers. Claim 3 is amended and features taken from claim 3 are added as claims 6 and 7, as suggested by the Examiner. Claim 1 is amended to include the features of claims 4 and 5. Support for new claims 6-22 are found throughout the specification, drawing Figures and claims as filed.

Applicant respectfully notes an Information Disclosure Statement with 6 references was submitted on May 6, 2005. The Examiner is requested to consider the information disclosed therein.

Applicants acknowledge the indication on page 3 of the Office Action that claim 2 recites allowable subject matter.

For the following reasons reconsideration is respectfully requested.

**I. OBJECTIONS**

On page 2 of the Office Action, the drawings are objected to because Figures 3 and 4 allegedly have insufficient labeling for individual parts. It is further stated the + and – symbols in Figures 3 and 4 are not discussed in the specification.

Figs. 3 and 4 are revised to obviate the objection. Withdrawal of the drawing objections is respectfully requested.

On page 2 of the Office Action, the disclosure is objected to for allegedly lacking disclosure of the non-labeled individual parts of Figs. 3 and 4. Paragraph [0014] is amended to obviate the objection. Withdrawal of the objection is respectfully requested.

On page 2 of the Office Action, claim 3 is objected to for containing the term “such as.” The claim is amended to obviate the objection. The objected features are added as claims 6 and 7, as suggested by the Examiner. Withdrawal of the objection is respectfully requested.

**II. REPLY TO REJECTIONS**

**A. 35 U.S.C. §112**

On page 3 of the Office Action, claims 1-3 are rejected under 35 U.S.C. §112, second paragraph as allegedly indefinite. Claim 1 is amended to obviate the rejection. Withdrawal of the rejection is respectfully requested.

**B. 35 U.S.C. §103(a)**

On page 3 of the Office Action, claims 1 and 3-5 are rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,424,006 to Murayama (hereinafter "Murayama"). The rejection is respectfully traversed.

Murayama discloses a phosphorescent phosphor generally having a  $MAl_2O_4$  structure. The metal element M is disclosed as at least one metal element selected from a group consisting of calcium, strontium and barium to which magnesium is added (column 2, lines 16-22). Further, in a preferred form, 0.01 mol % to 10 mol % of europium (Eu) may be doped to the matrix expressed by  $MAl_2O_4$  as an activator in terms of mol % relative to the metal element express by M (column 2, lines 23-26). In another preferred form, 0.001 mol % to 10 mol % of at least one element selected from a group consisting of lanthanum, cerium, praseodymium, dysprosium, holmium, etc. and manganese (Mn) may be doped to the compound as a co-activator in terms of mol % relative to the metal element expressed by M (column 2, lines 27-34).

In other words, Murayama discloses a structure having  $M:MgAl_2O_4i:Eu$ , which may further include Mn as a co-activator. An example of such a structure is  $Sr_x Mg_{1-x} Al_2O_4$  of example 10 (col. 19, lines 1-34).

As to relationships between elements, Murayama discloses that manganese (Mn) is a co-activator present in a relative amount compared to the metal element M (part of which is magnesium), and europium is present in an amount relative to the metal M (part of which is

magnesium). That is, Murayama discloses that there is a relationship between the amount of europium (Eu) and the amount of M including magnesium (Mg). Thus, Murayama discloses europium's relationship with the combined M:Mg pair. Example 10 shows the relationship, whereby strontium (Sr) is used as one metal element M and magnesium (Mg) is used as the other metal element M and the amounts of strontium and magnesium vary in a  $Sr_x Mg_{1-x}$  relationship. However, Murayama fails to disclose the europium – one metal element from Ca, Sr, and Ba combination's relationship to the other metal element (magnesium, Mg). That is, Murayama fails to disclose or suggest that the amount of the magnesium depends on the combined amount of europium and the second metal element (Sr, for example).

In contrast, claim 1 recites a green oxide phosphor for emitting a visible ray, which has a general composition formula of  $Mg_{1-(x+y)}Al_2O_4:Eu_x^{2+}, M_y^{2+}$ , as recited in claim 1. In other words, both the amount of the europium, and metal element M affect the amount of magnesium. This is a relationship Murayama fails to disclose or suggest. Consequently, claim 1 is patentable over the applied reference. Claim 3, which depends from claim 1, is likewise patentable over the applied reference for at least the reasons discussed above and for the additional features it recites. Withdrawal of the rejection is respectfully requested.

### III. NEW CLAIMS

New claims 6-22 are also patentable and the cited references do not disclose or teach or suggest the claimed features. Prompt consideration and allowance are respectfully requested.

**IV. CONCLUSION**

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **Seth S. Kim**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,  
FLESHNER & KIM, LLP



Daniel Y.J. Kim  
Registration No. 36,186  
Seth S. Kim  
Registration No. 54,577

P.O. Box 221200  
Chantilly, Virginia 20153-1200  
(703) 766-3701 DYK/SSK:cre:kny  
**Date: JUNE 28, 2005**

**Please direct all correspondence to Customer Number 34610**

Serial No. 10/774,500  
Reply to Office Action of March 30, 2005

Docket No. HI-0187

**Amendments to the Drawings:**

The attached drawings includes changes to Figs. 3 and 4. These sheets, which include Figs. 3 and 4, replace the original sheets including Figs. 3 and 4. In Figs. 3 and 4, previously omitted elements 10, 11 and 12 have been added. In Fig. 4, previously mislabeled element numbers 2, 3, 4, 5, and x have been added.

Attachment: Replacement Sheet